TOSHIBA

FILE NO. 050-200533

SERVICE MANUAL

LCD Color Television

15VL56B
20VL56B
20VL56G

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8. SCHEMATIC DIAGRAM

MODEL : 15VL56B/20VL56B/G

WARNING : BEFORE SERVICING THIS CHASSIS, READ THE "SERVICE SAFETY PRECAUTIONS" ON PAGE 3 OF THIS MANUAL.

CAUTION : The international hazard symbols "⚠" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the SERVICE SAFETY PRECAUTIONS on the MANUAL for this model. Do not degrade the safety of the receiver through improper servicing.

NOTE:

1. RESISTOR Resistance is shown in ohm [K = 1.000, M = 1.000.000]. All resistors are 1/6W and 5% tolerance carbon resistor, unless otherwise noted as the following marks.
   1/2R = Metal or Metal oxide of 1/2 watt 1/2S = Carbon compsistion of 1/2 watt
   1RF = Fuse resistor of 1 watt 10W = Cement of 10 watt
   K = ±10% G = ±2% F = ±1%
2. CAPACITOR Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in μF, and the values more than 1 in pF.
   All capacitors are ceramic 50V, unless otherwise noted as the following marks.
   —|(+)|— Electolytic capacitor —|(M)|— Mylar capacitor
3. The parts indicated with " ⚠ " have special characteristics, and should be replaced with identical parts only.
4. Voltages read with DIGITAL MULTI-METER from point indicated to chassing ground, using a color bar signal with all controls at normal, line voltage 220 volts.
5. Waveforms are taken receiving color bar signal with enough sensitivity.
6. Voltage reading shown are nominal values and may vary ±20% except H.V.

*** The information contained in this section subjects to model.**

■SCHEMATIC DIAGRAM STRUCTURE:

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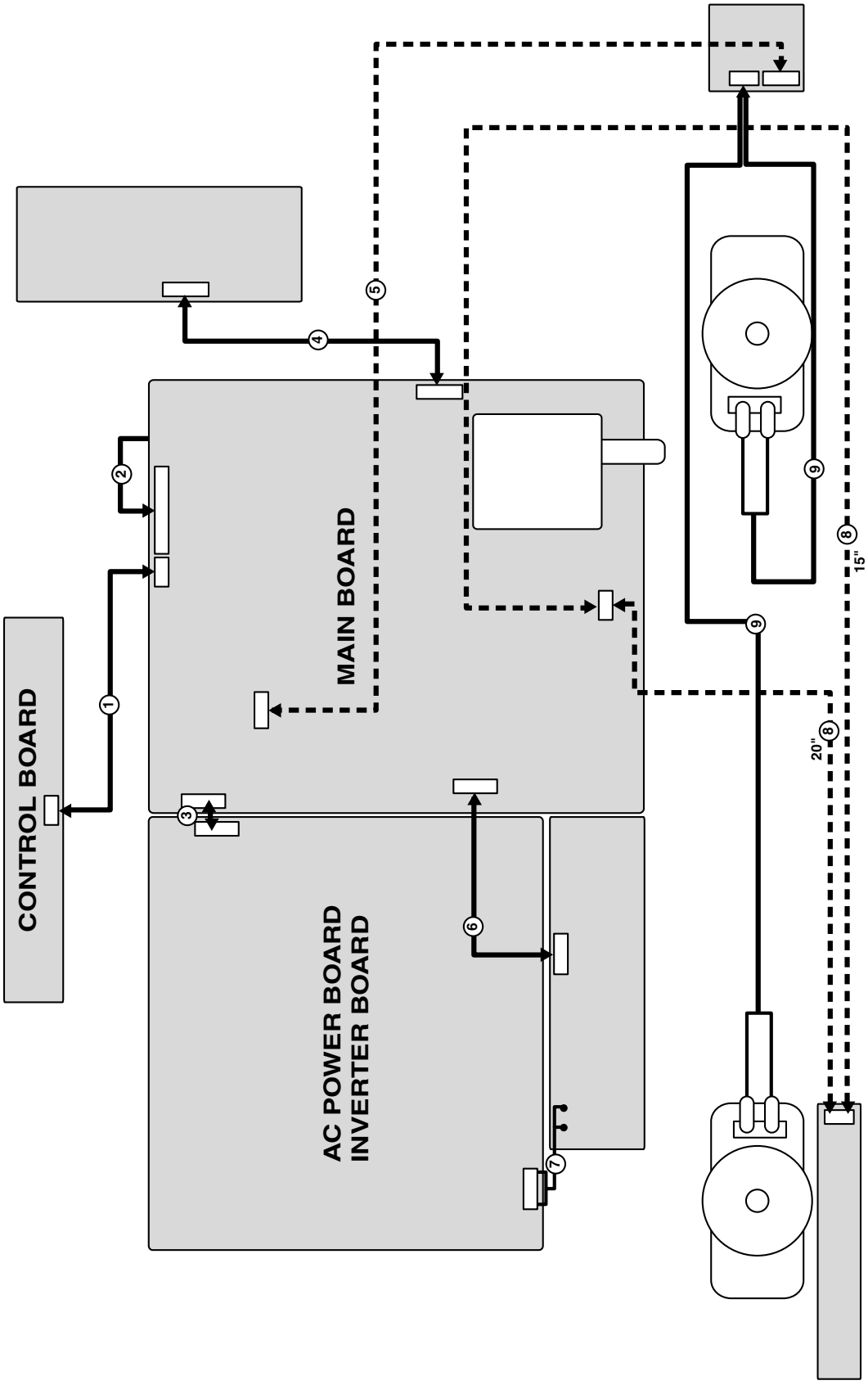
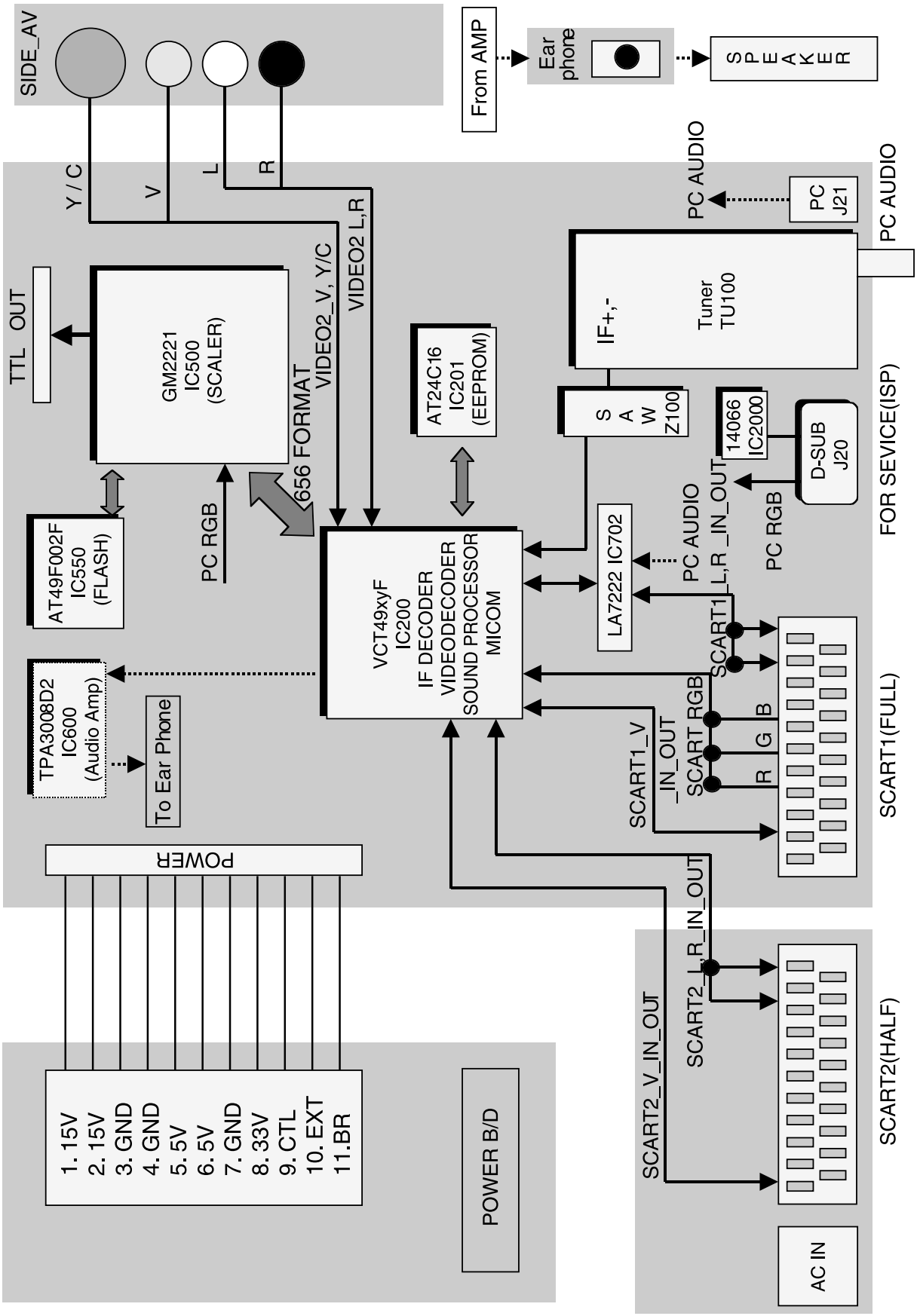
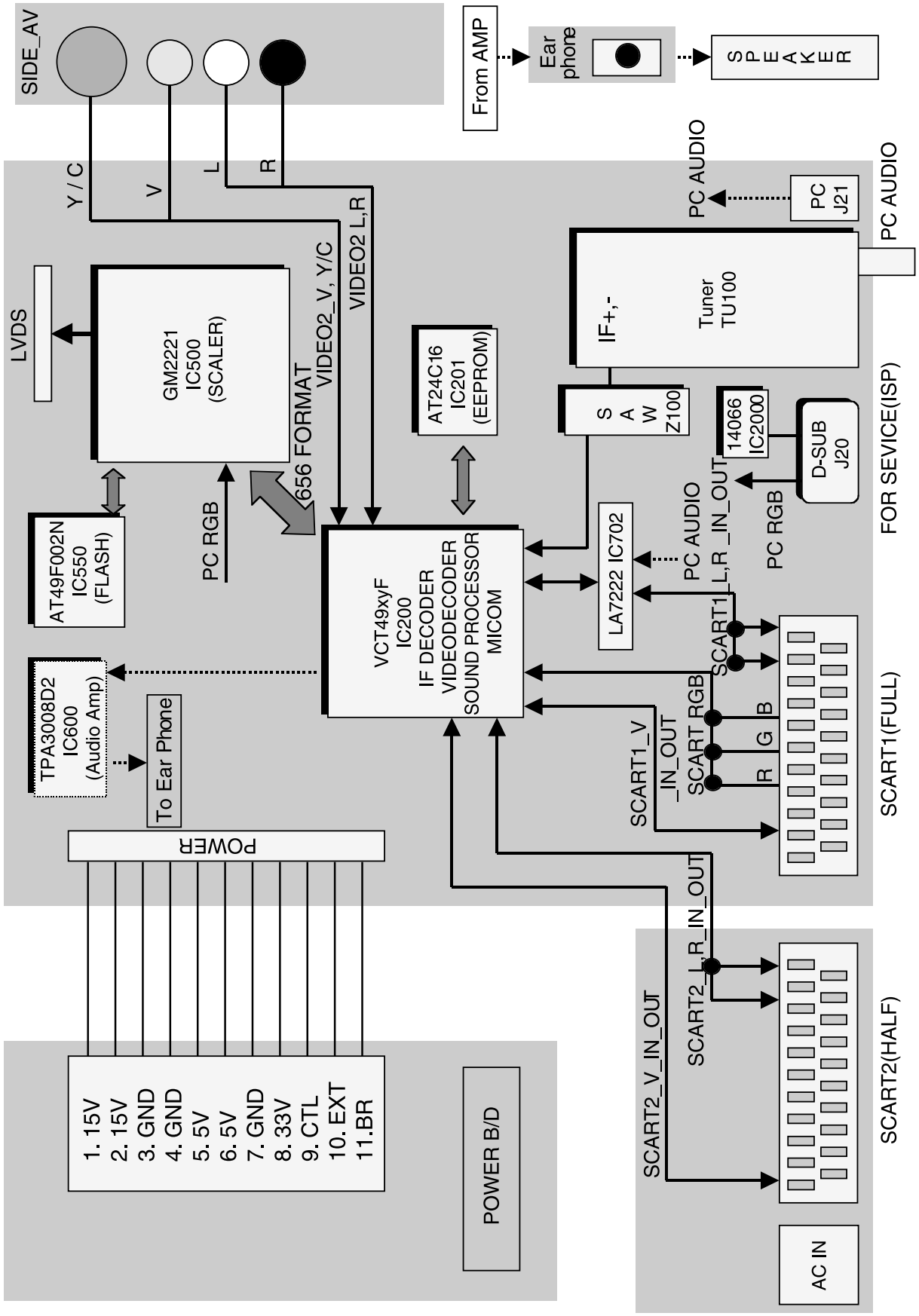
8-1. WIRING DIAGRAM



8-2. BLOCK DIAGRAM (**20VL56B/G**)



8-3. BLOCK DIAGRAM (**15VL56B**)



1. Video Controller Unit & Display Data Conversion Unit

   The video controller unit receives the video signals inputted through the tuner, AV port (VIDEO1, VIDEO2, VIDEO3), and converts them into an ITU656 signal through the microcomputer (VCTI) combined with the video decoder that integrates various functions in one chip.

   Either component YPbPr signal or PC RGB signal is selected by the switching IC and inputted to a scaler (GM2221), which is sent to the LCD module after being modified to an LVDS signal through the integrated LVDS IC.(Only 15VL56B)

   Or, it is sent to the LCD module as a TTL output.(Only 20VL56B/G)

   VCTi is the main microprocessor that handles video signal processing and sound signal processing. It also manages the RF signals received from the tuner.

   The scaler can control timing to fit into the LCD panel, and can also control the size and position of the input signal.

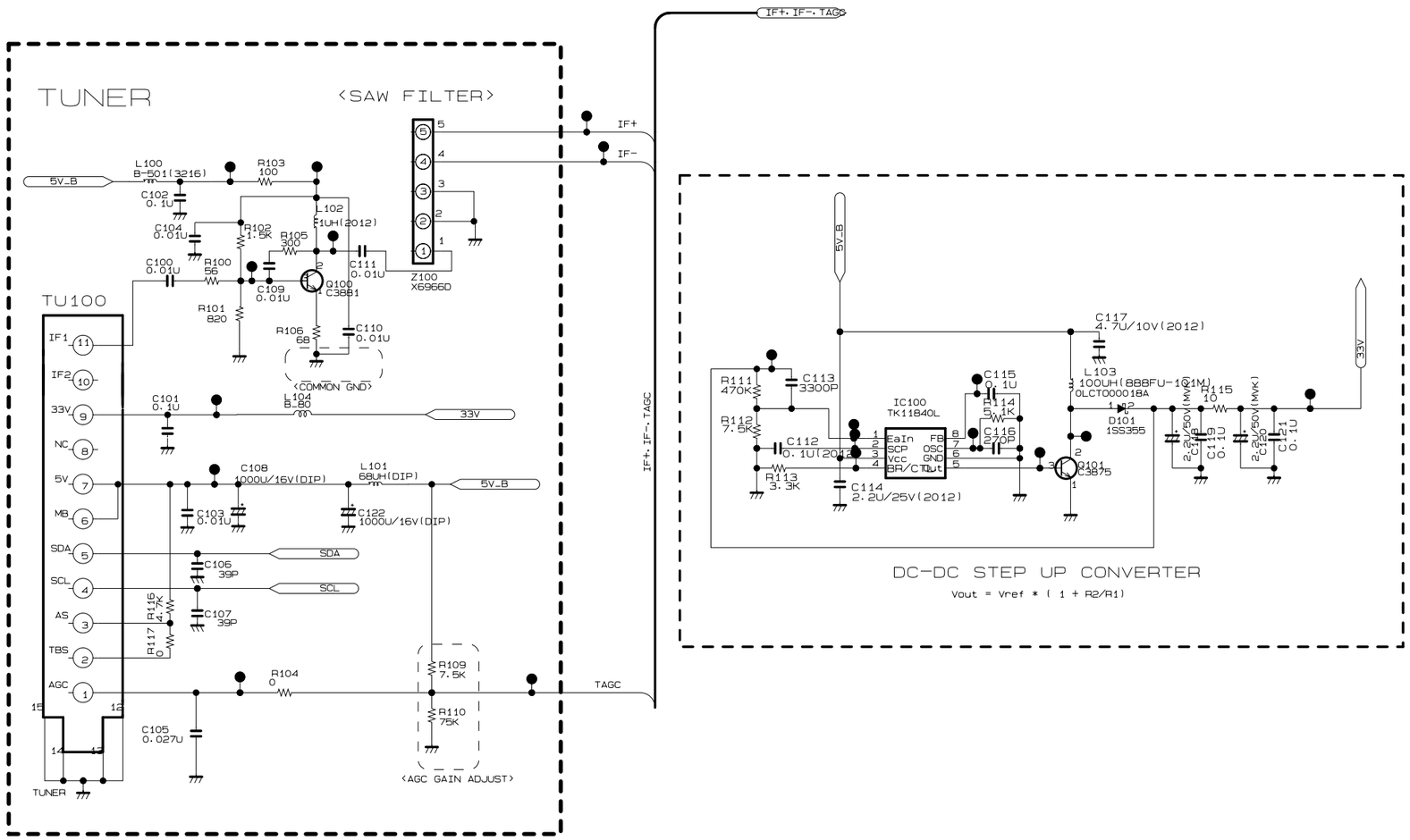
2. Power Supply Unit

   The power supply unit provides 15V and 5V DC power to the mainboard.

   The PWM Step- Up DC/ DC Converter circuit is used to generate the 33V used for the tuner.

   15V power is directly used by the sound amplifier IC and is also used to generate 5V and 3.3V power through the Step- Down DC/ DC Converter. 5V power is converted to 3.3V and 1.8V power through the regulator, which in turn supplies electrical power for ICs such as VCTI and scaler.

*** The information contained in this section subjects to model.**



15VL56B/20VL56B/G
TUNER

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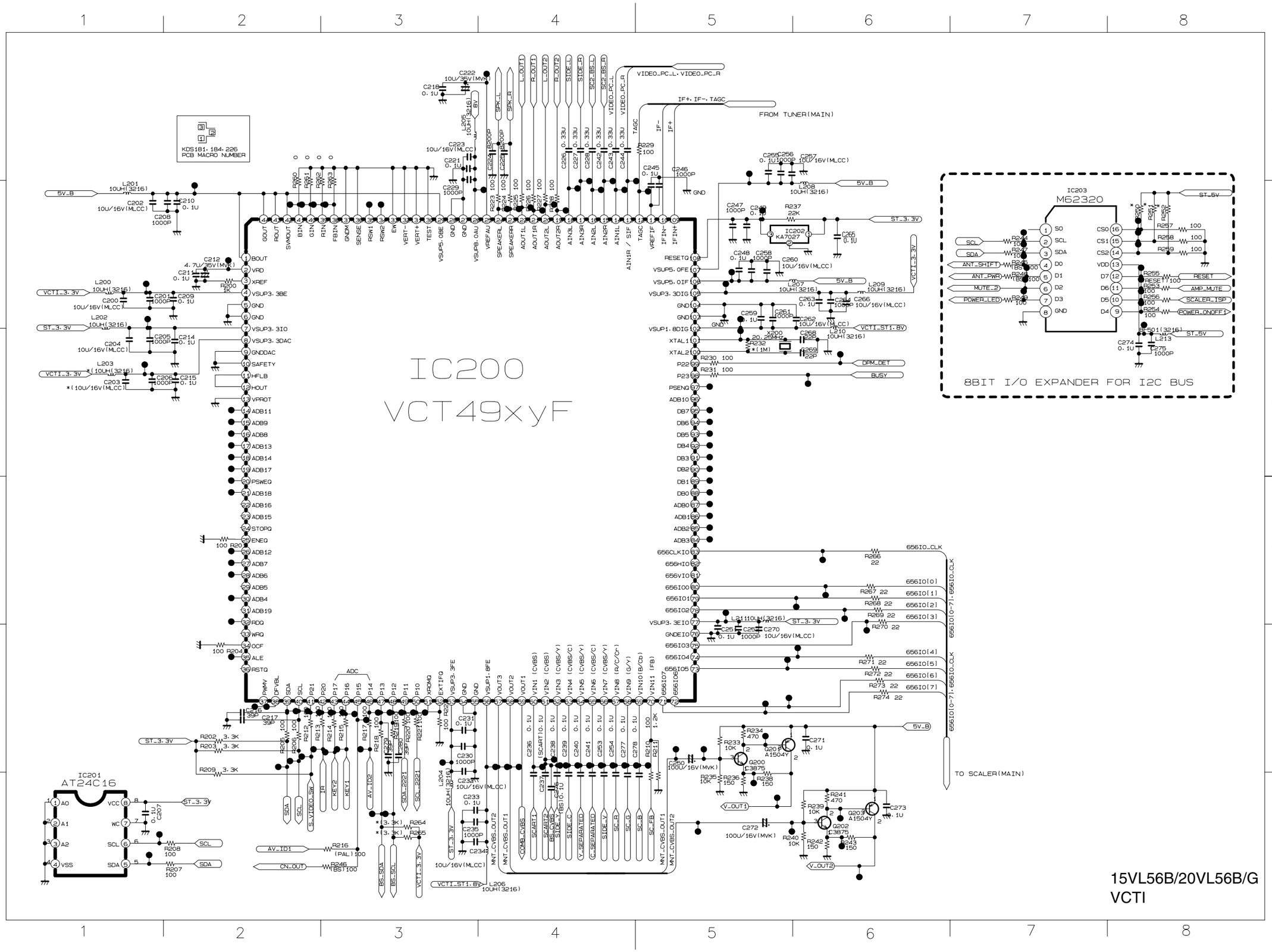
IC200
VCT49xyF
KDS181·184·226
PCB MACRO NUMBER
FROM TUNER(MAIN)
TO SCALER(MAIN)
IC203
M62320
8BIT I/O EXPANDER FOR I2C BUS
IC201
AT24C16
IC202
KA7027
15VL56B/20VL56B/G
VCTI

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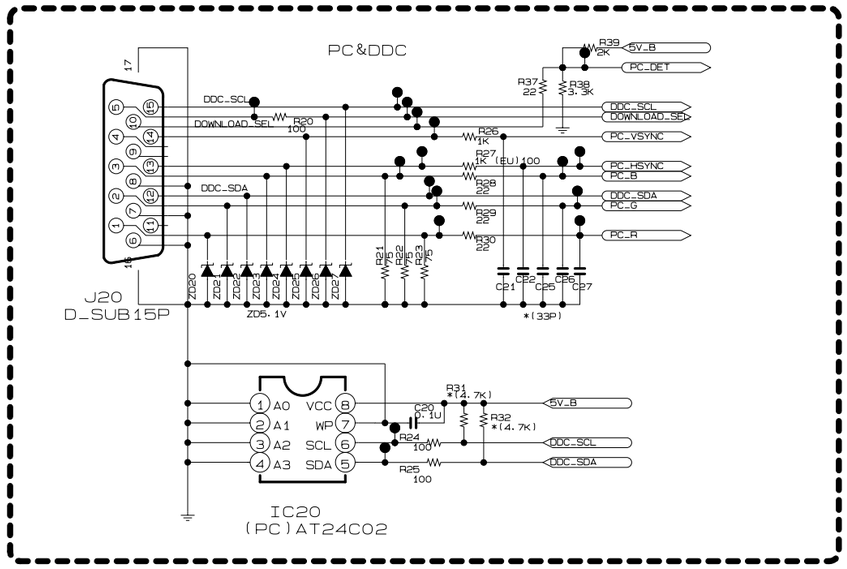

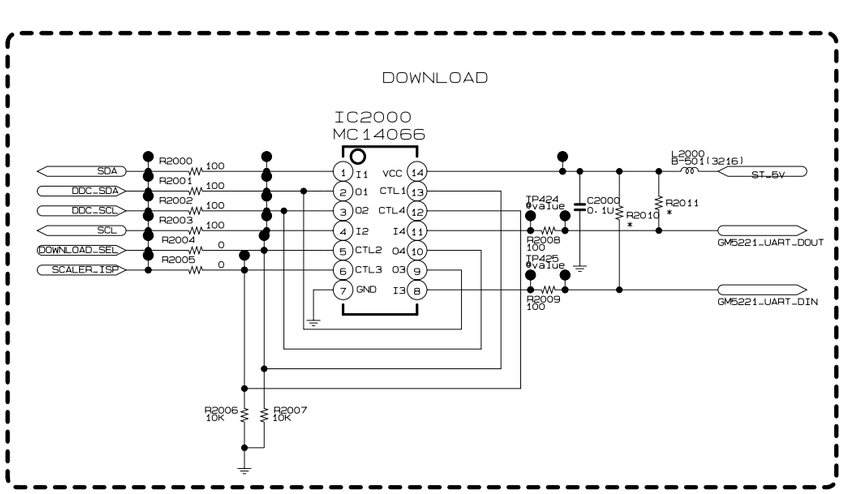

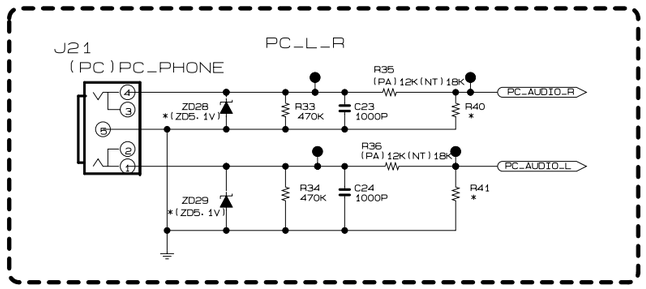

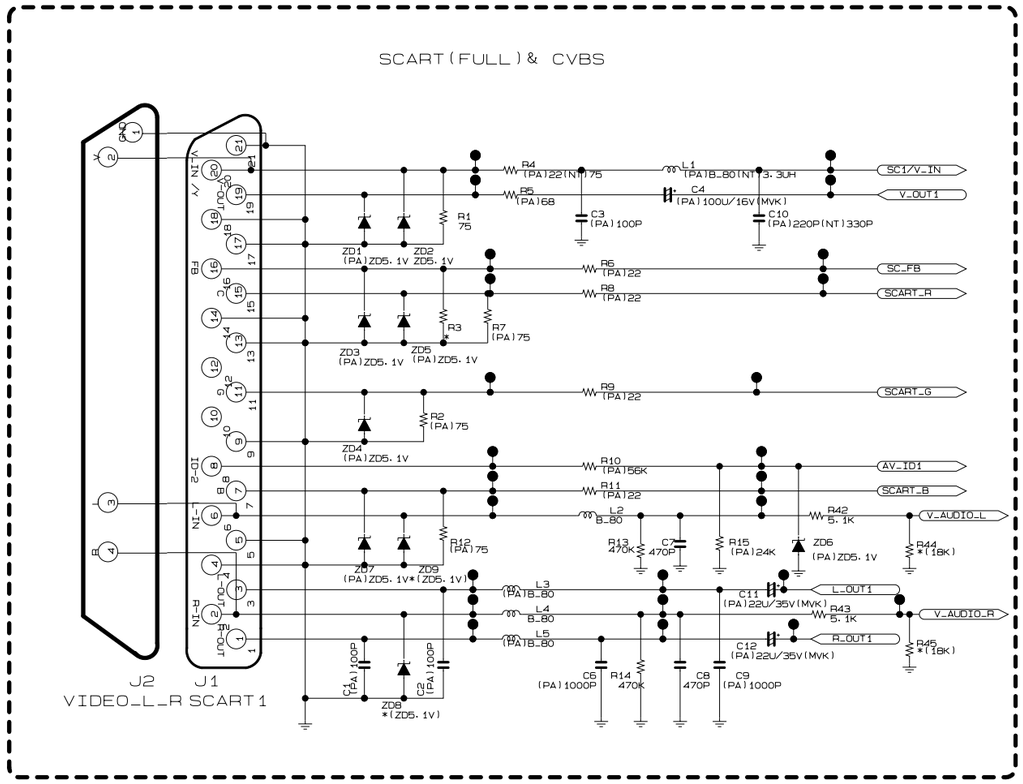

15VL56B/20VL56B/G
INPUT

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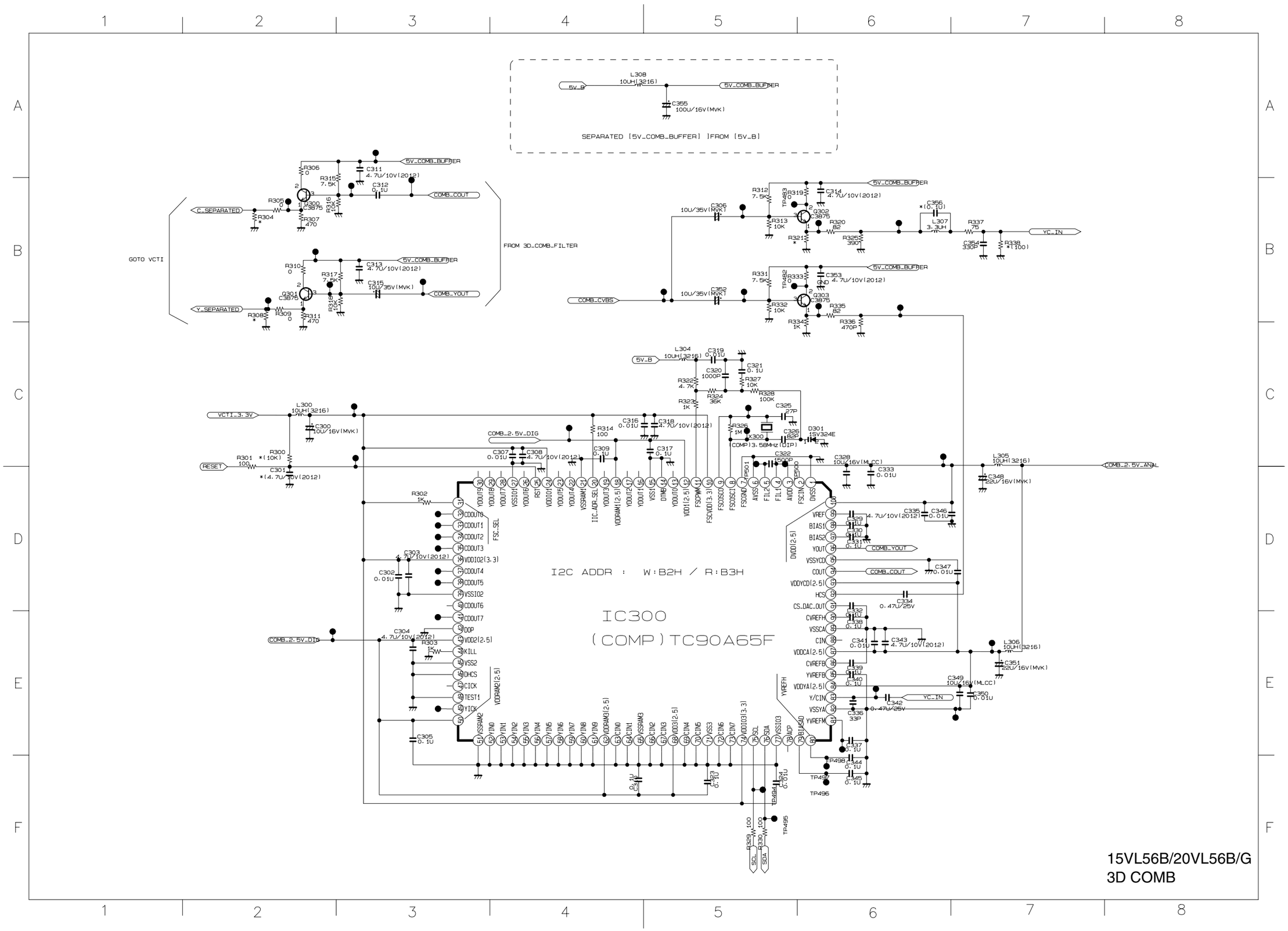
SEPARATED [5V_COMB_BUFFER]]FROM [5V_B]
L308
10UH(3216)
5V_B
5V_COMB_BUFFER
C355
100U/16V(MVK)
GOTO VCTI
FROM 3D_COMB_FILTER
C_SEPARATED
Y_SEPARATED
COMB_COUT
COMB_YOUT
COMB_CVBS
YC_IN
VCTI_3.3V
RESET
COMB_2.5V_DIG
COMB_2.5V_ANA
I2C ADDR : W:B2H / R:B3H
IC300
(COMP)TC90A65F
FSC_SEL
SCL
SDA
15VL56B/20VL56B/G
3D COMB

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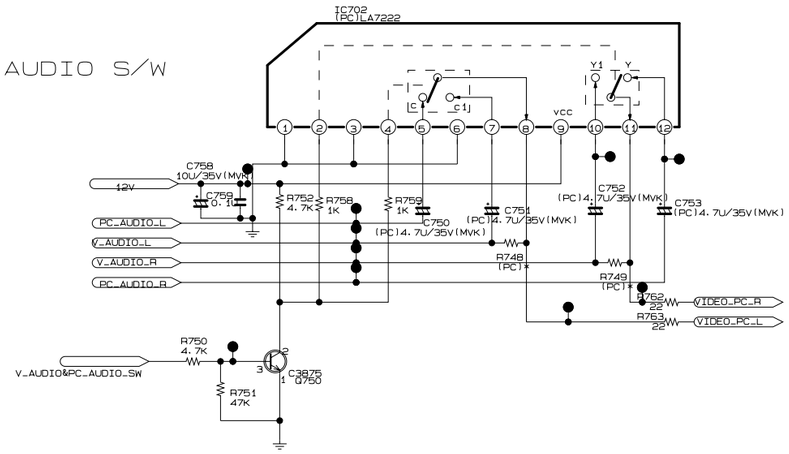
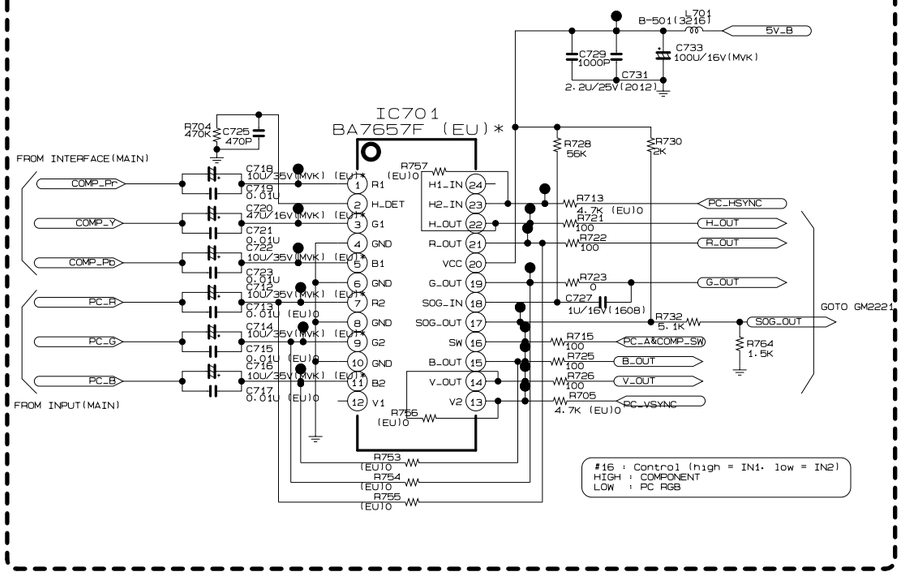
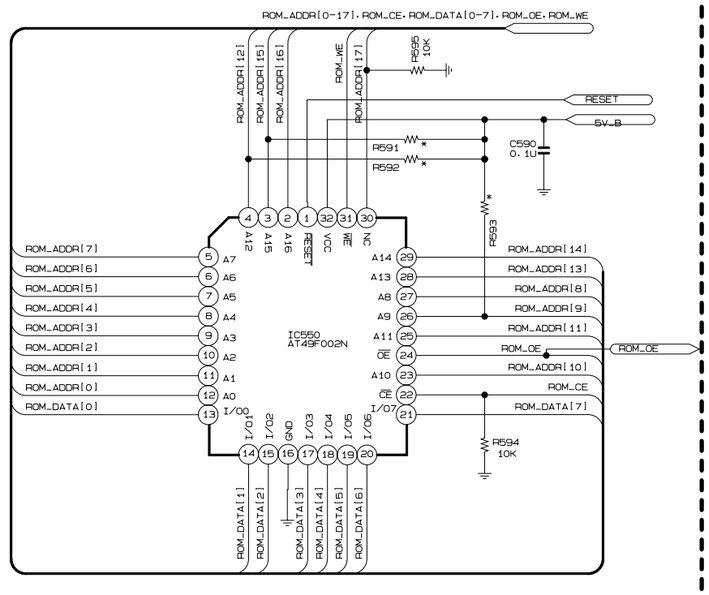
AUDIO S/W



PC_COMP S/W

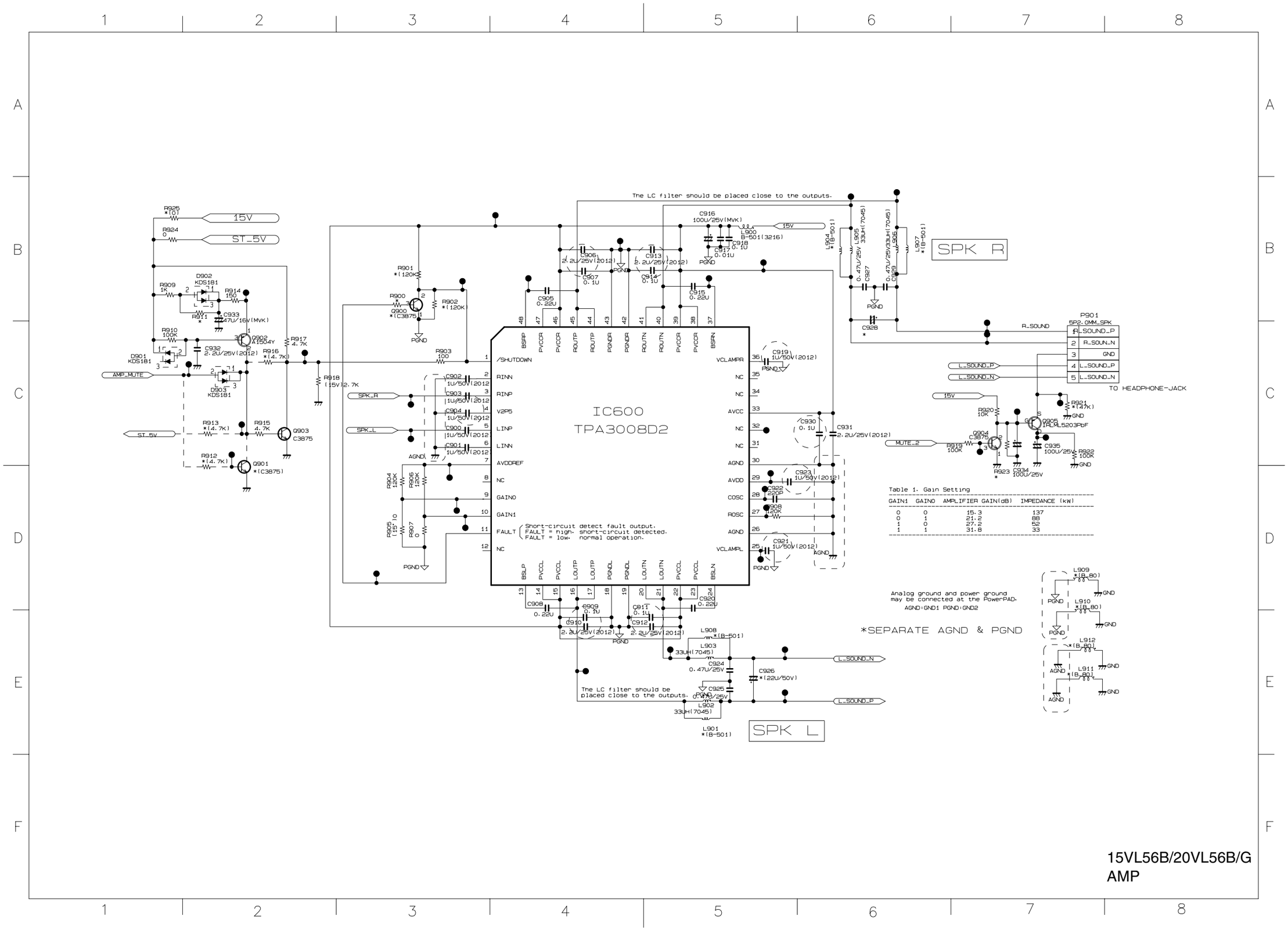


FLASH ROM



15VL56B/20VL56B/G
S/W&ROM

(5/17)



15VL56B/20VL56B/G
AMP

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GM2221

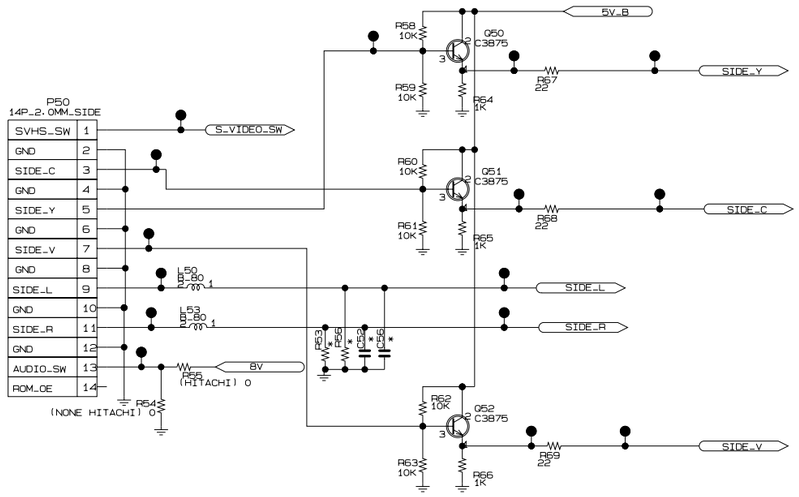
IC500

* ML-05TA Panel Option

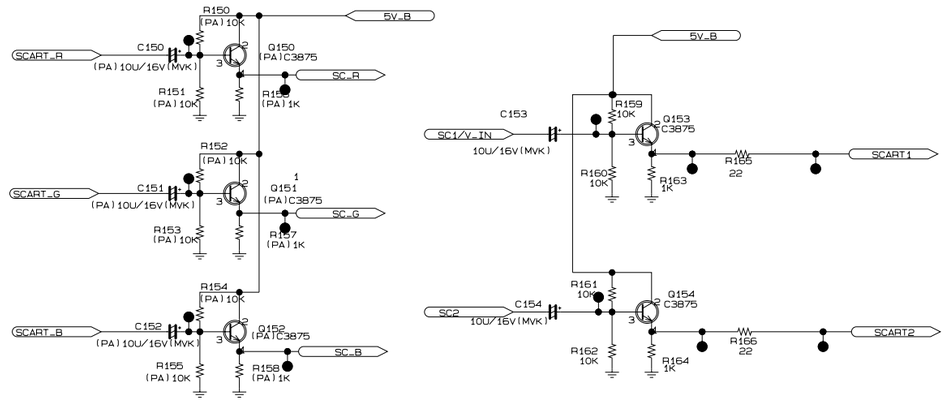
ADC1	ADC2	ADC3	Panel	Inch	Resolution
0	0	0	LPL	20"	VGA
0	0	1	LPL	15"	XGA(TN)
0	1	0	LPL	15"	XGA(IPS)
0	1	1	LPL	23"	WXGA(16:9)

15VL56B/20VL56B/G
SCALER

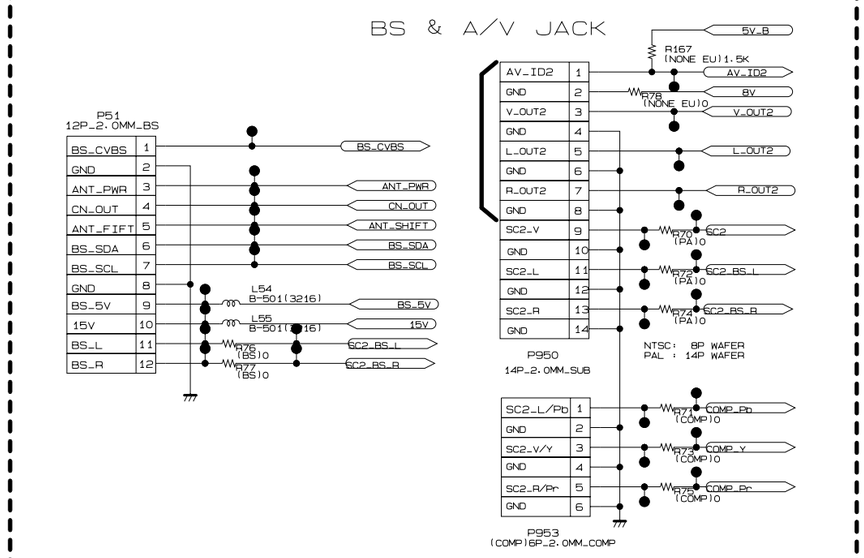
SIDE A/V



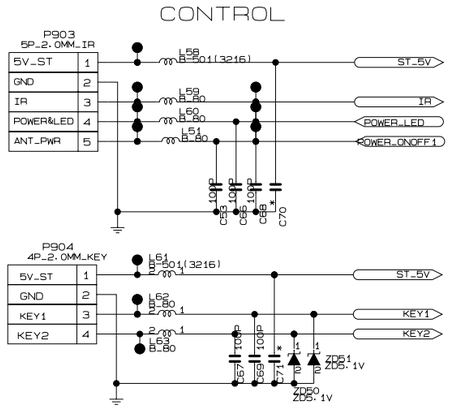
BUFFER



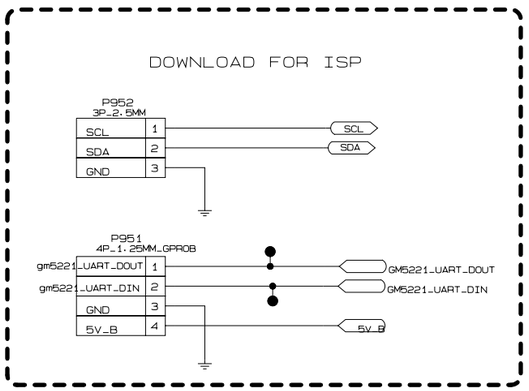
BS & A/V JACK



CONTROL



DOWNLOAD FOR ISP



15VL56B/20VL56B/G
INTERFACE

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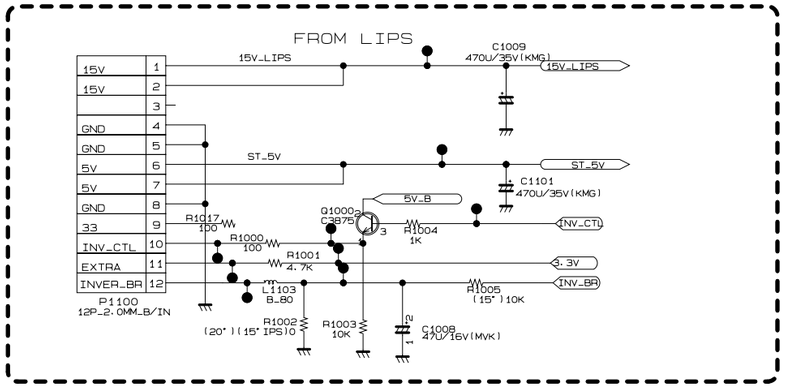

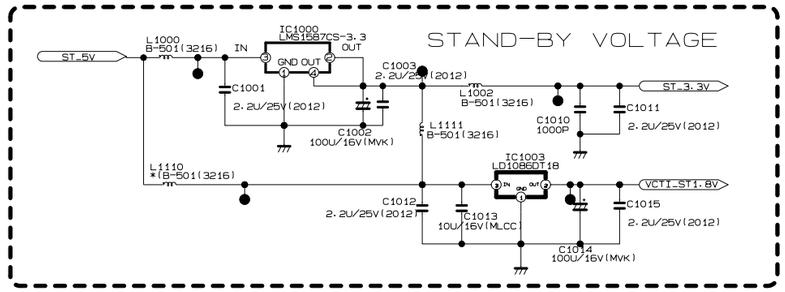

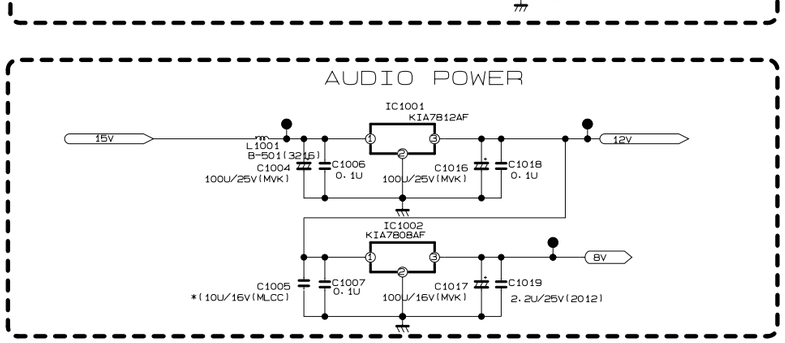

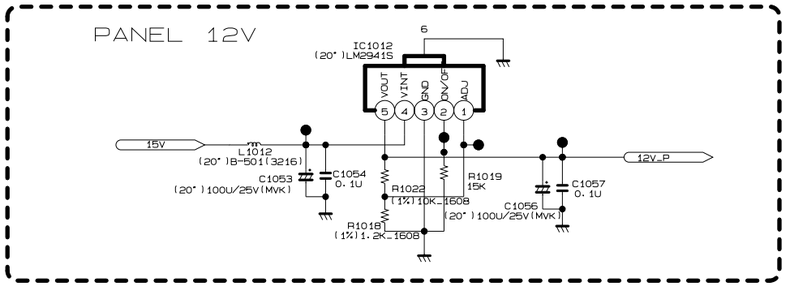

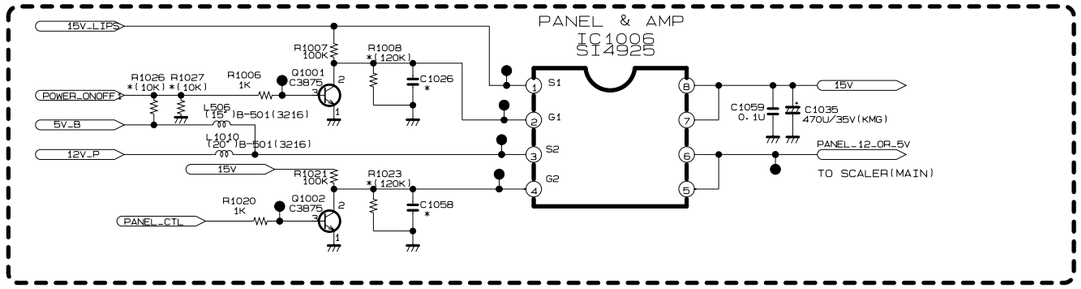

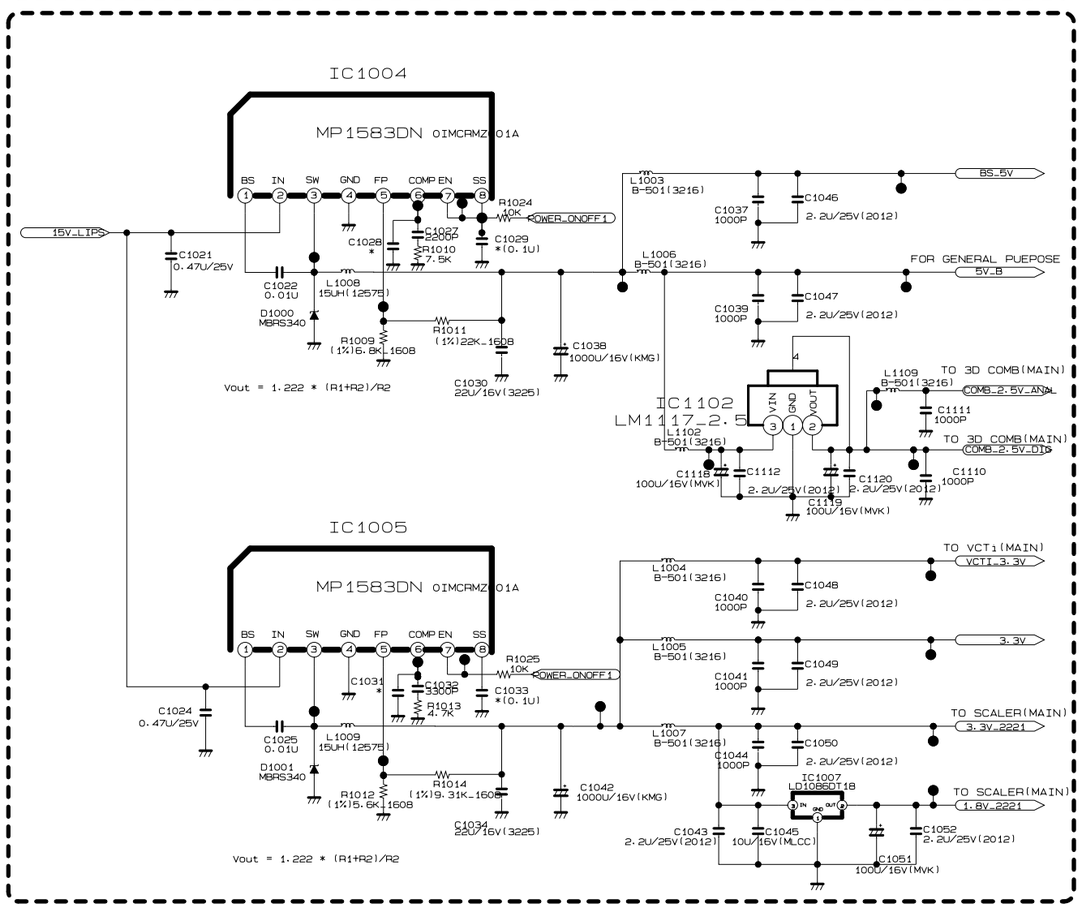

15VL56B/20VL56B/G
POWER

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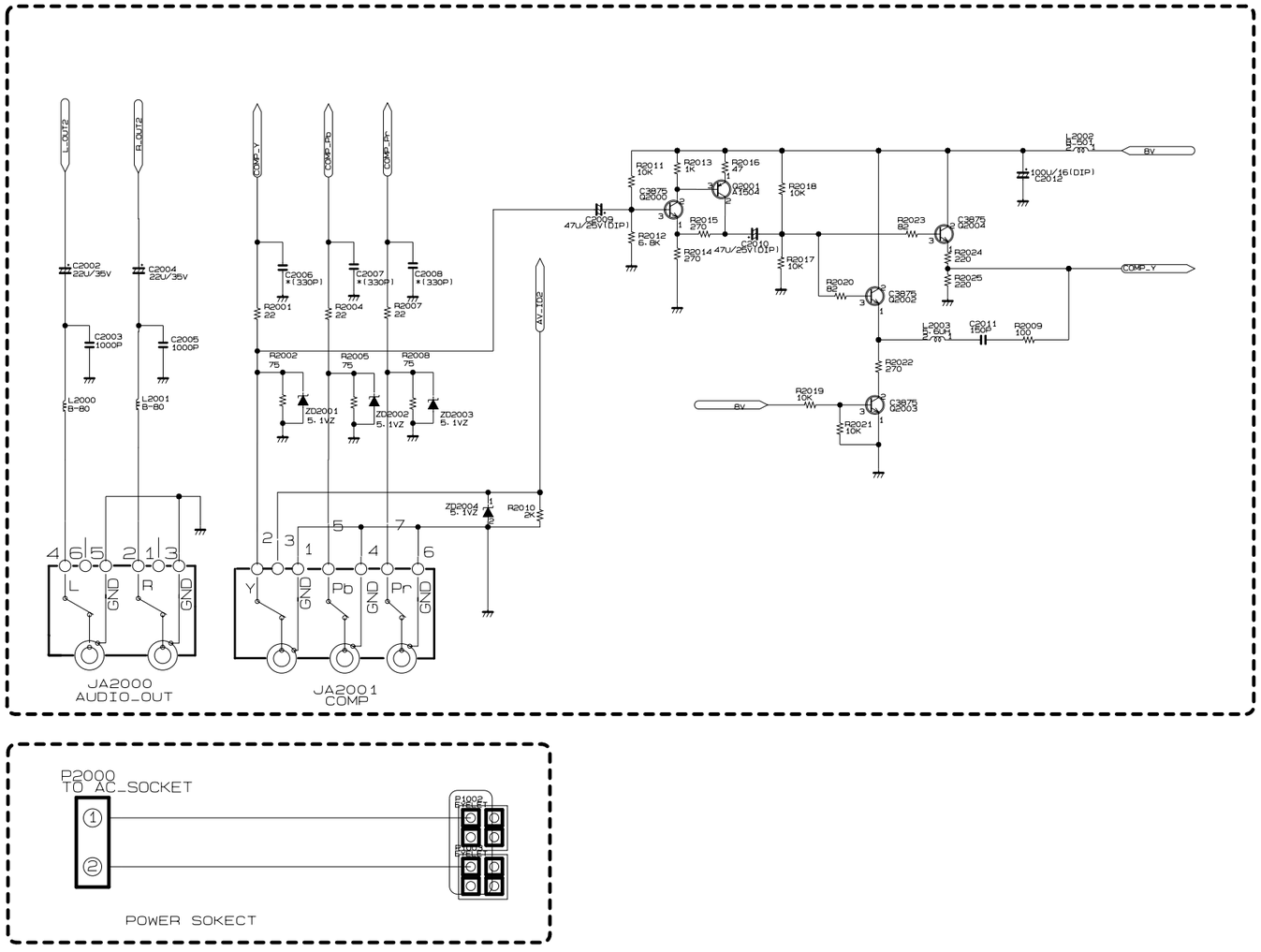
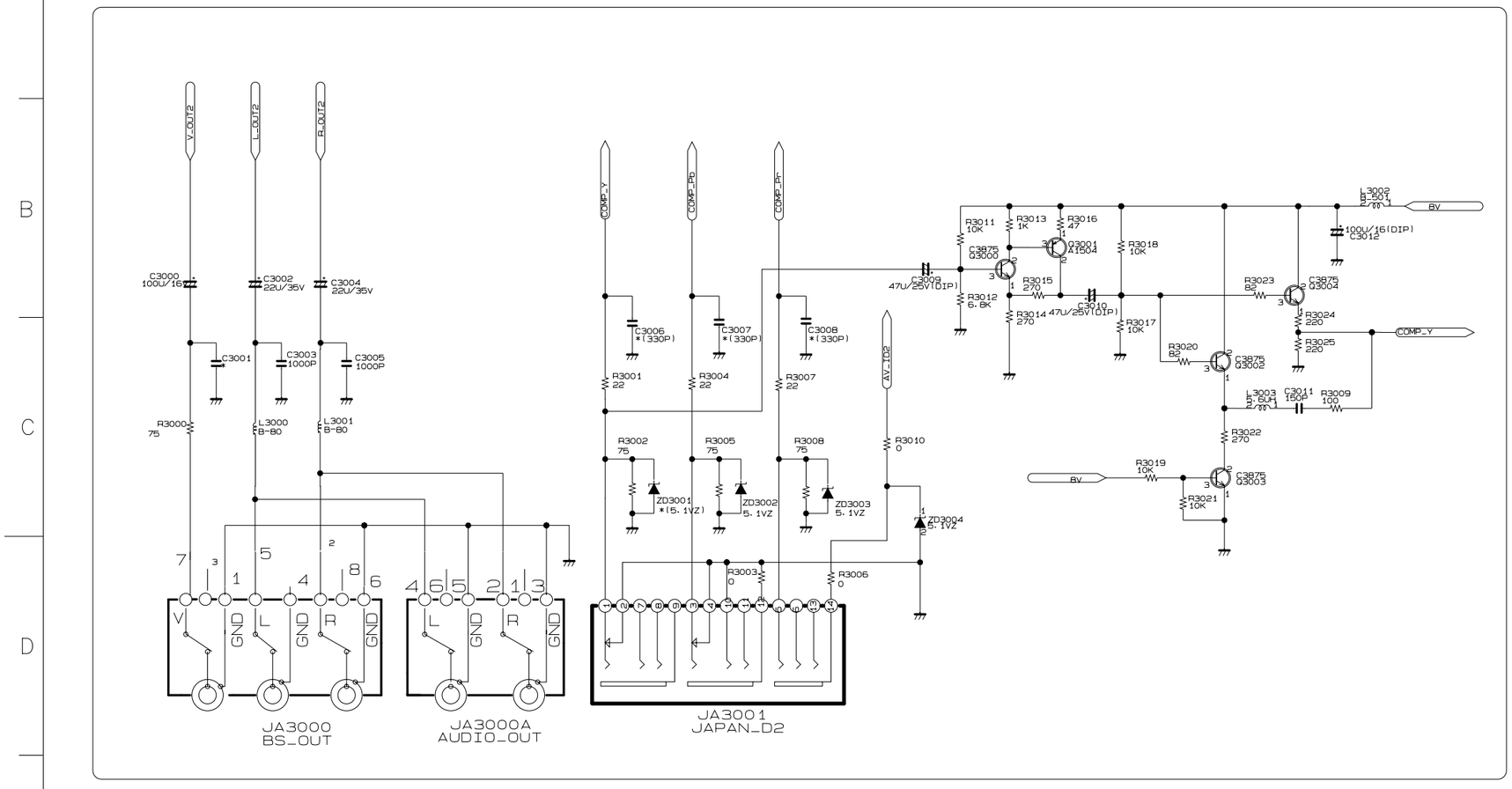


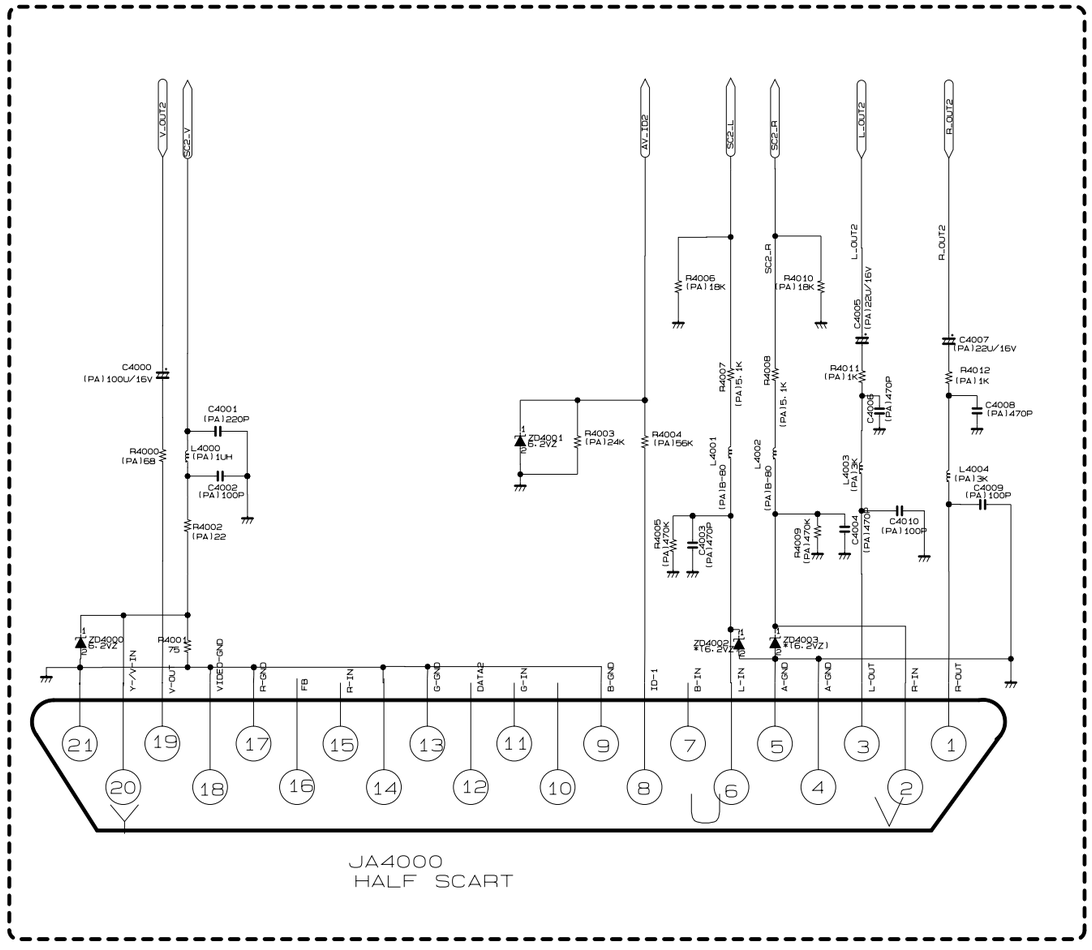
15VL56B/20VL56B/G
COMPONENT JACK

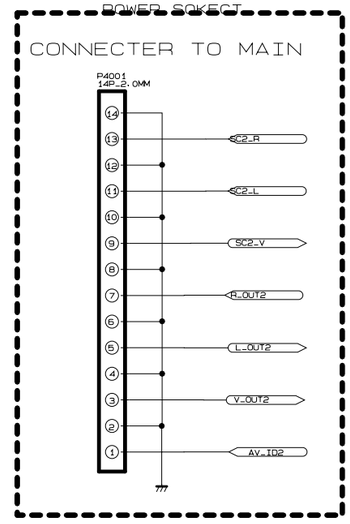
(10/17)

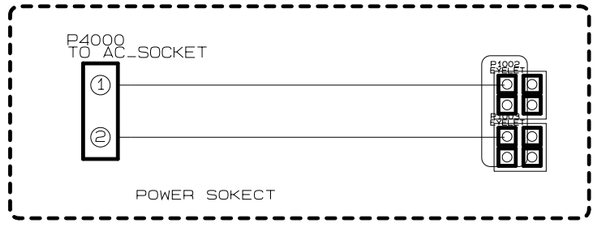


15VL56B/20VL56B/G
D-JACK

(11/17)

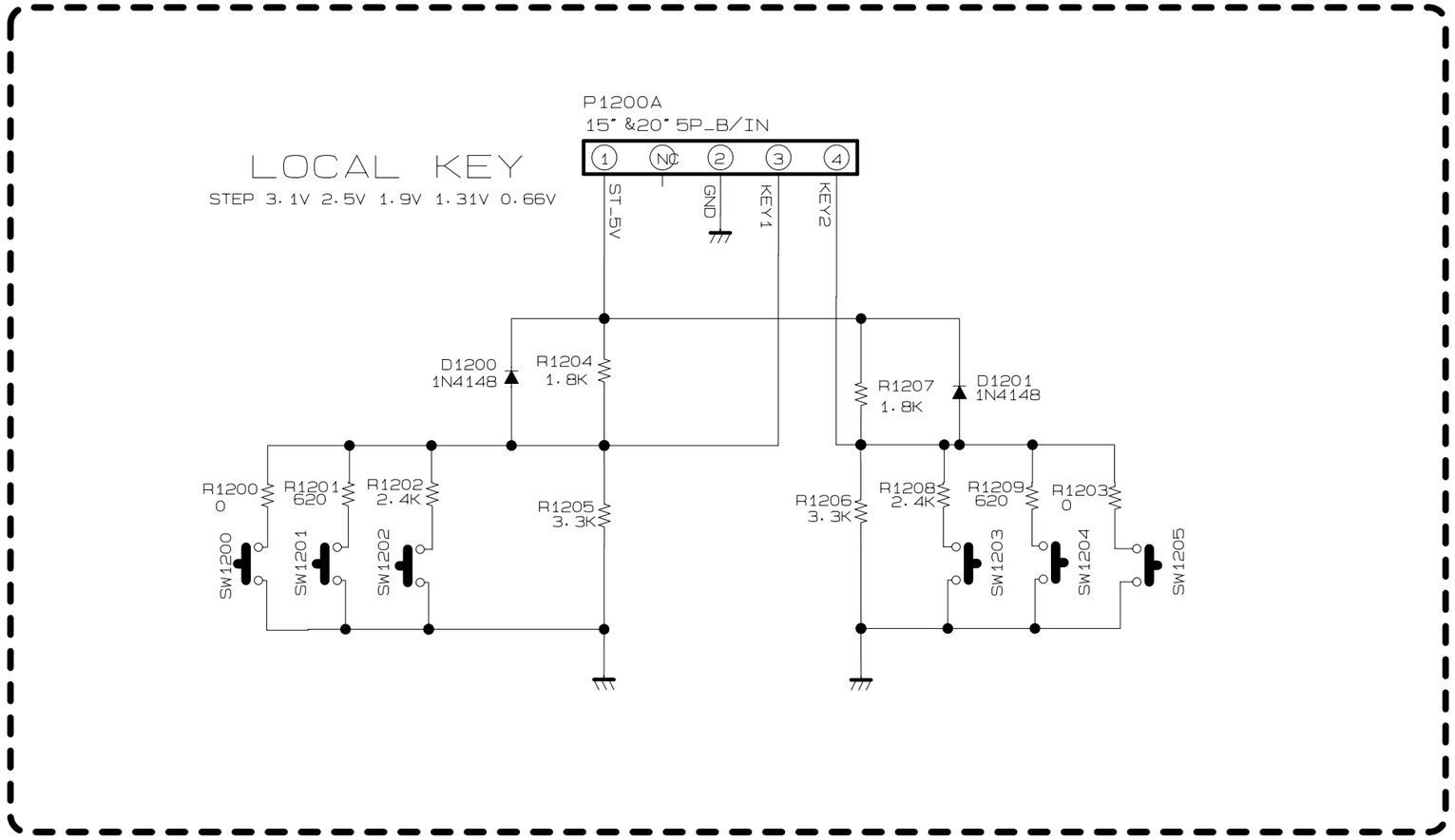






15VL56B/20VL56B/G
SCART JACK

(12/17)



15VL56B/20VL56B/G
KEY

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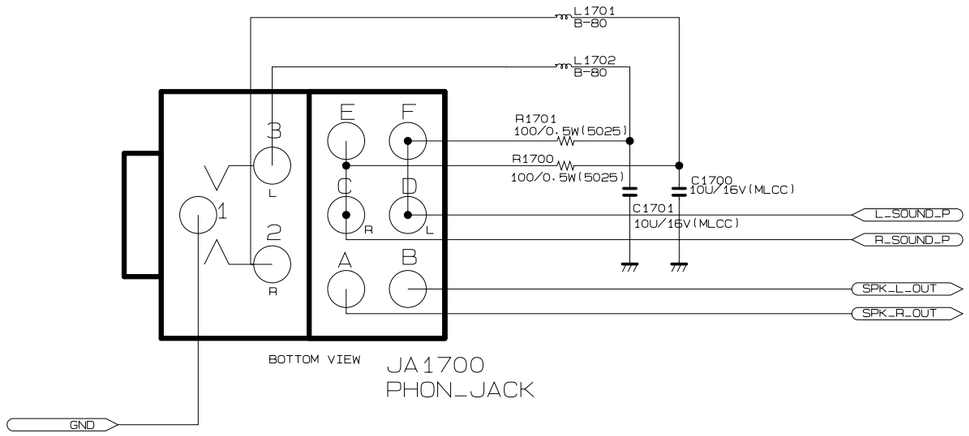
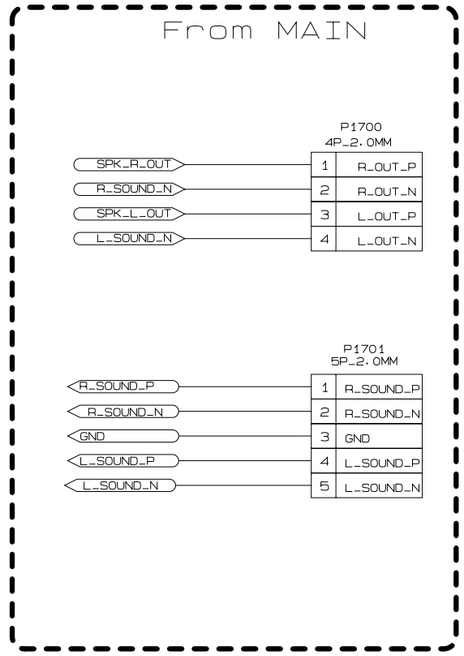
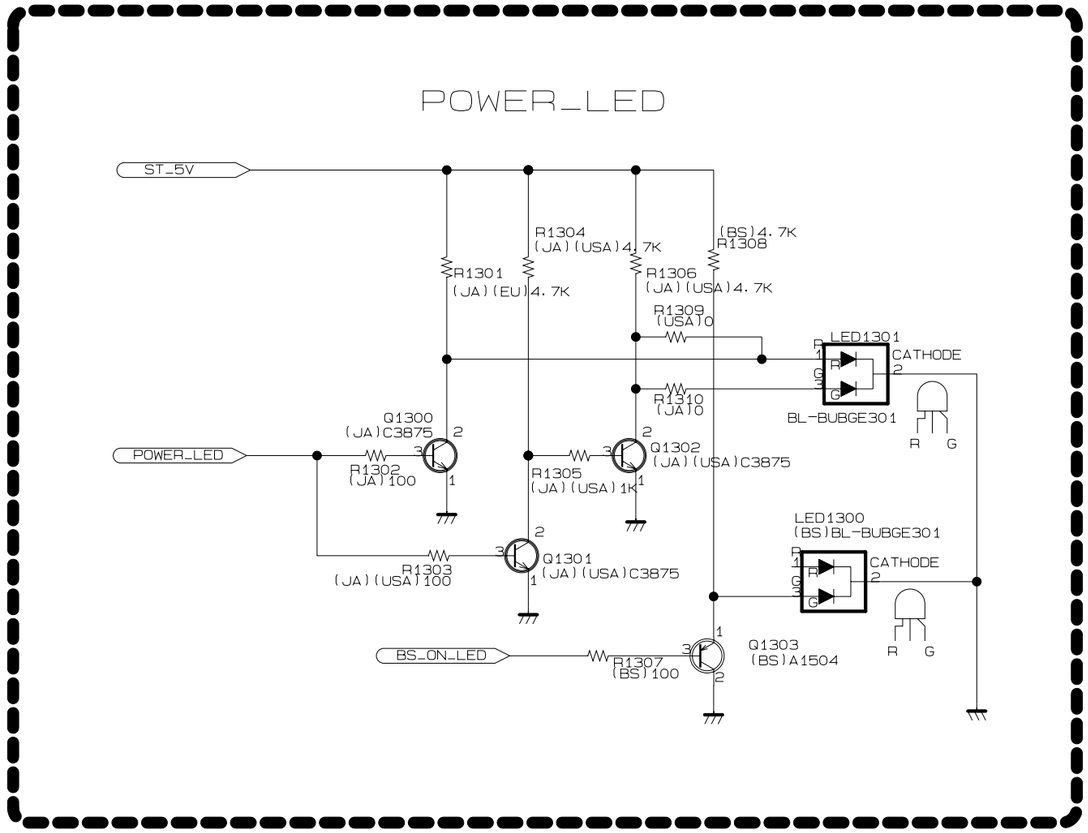
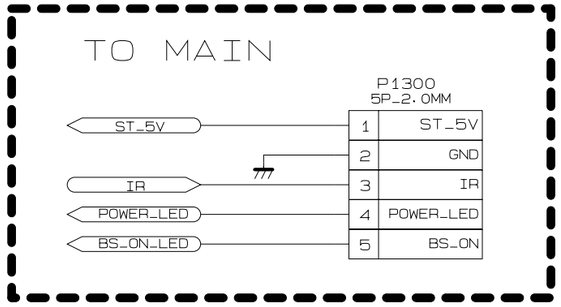


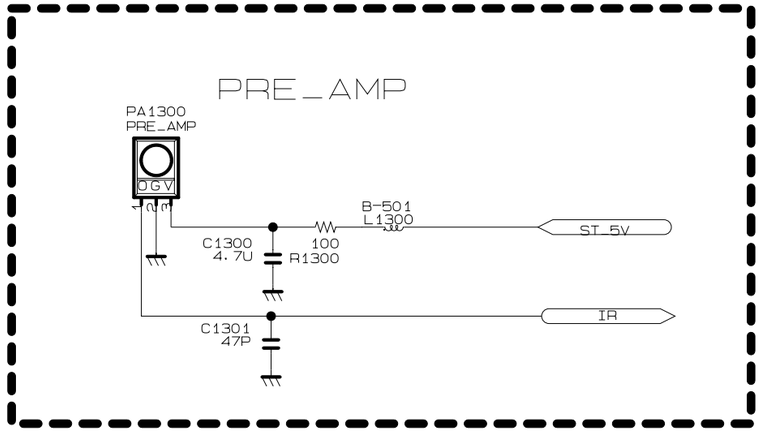


15VL56B/20VL56B/G
HEADPHONE

(14/17)



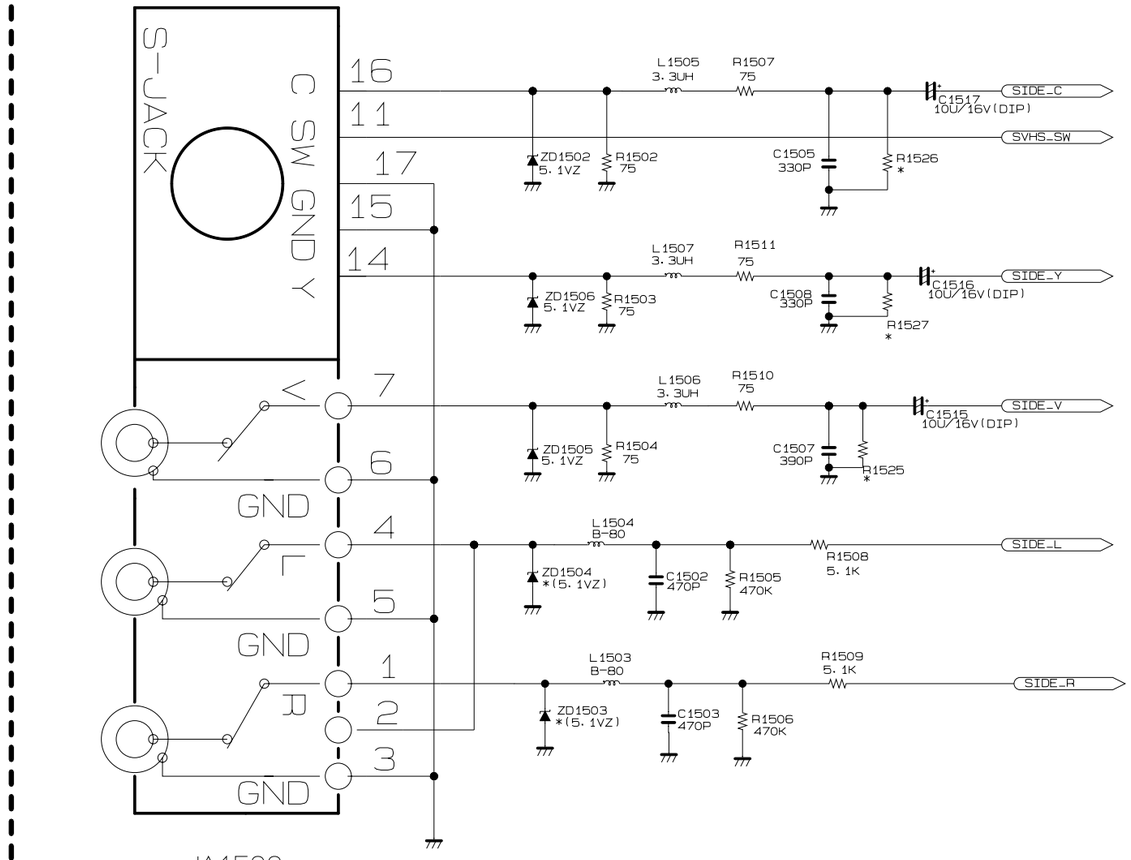




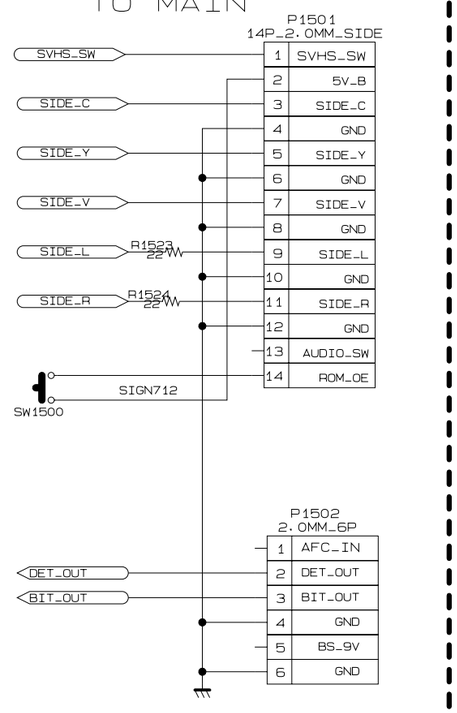
15VL56B/20VL56B/G
LED&IR

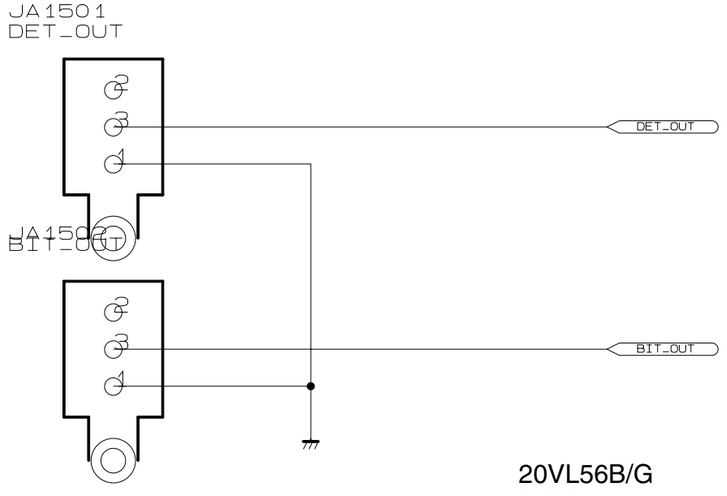
(15/17)

SIDE A/V(TOSHIBA)



TO MAIN

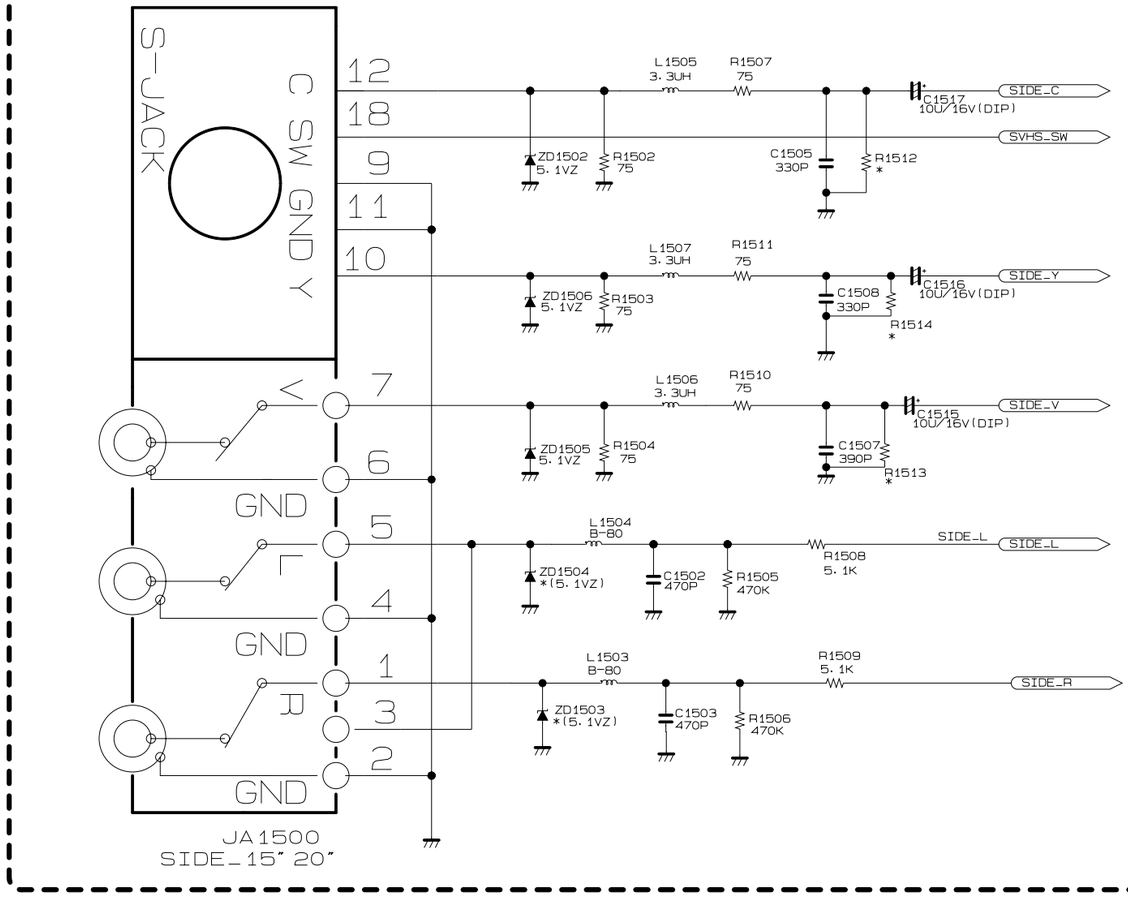


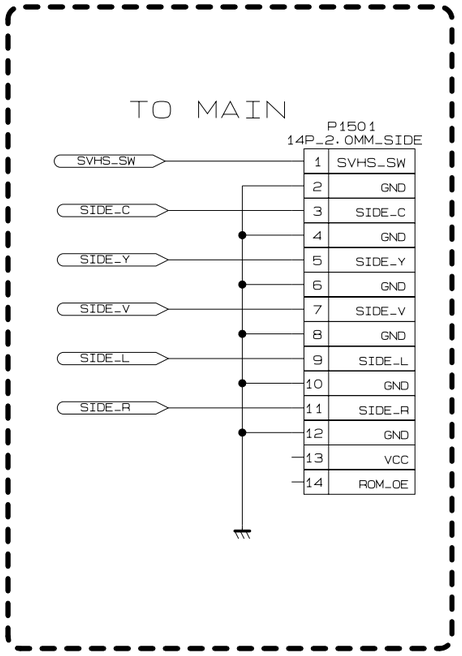


20VL56B/G
SIDE

(16/17)

SIDE A/V(TOSHIBA)





15VL56B
SIDE

(17/17)